Michael Crawshaw

Ph.D. Student
George Mason University
Research Interests: Optimization for machine learning, Federated learning

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🌐 Personal Website
⭘ Github Profile

EDUCATION

George Mason University
Ph.D. in Computer Science   *2019 - Present*
M.S. in Computer Science   *2019 - 2022*
Advisor: Mingrui Liu

The Ohio State University   *2015 - 2019*
B.S. in Mathematics and Computer Science, Honors

PUBLICATIONS

EPISODE: Episodic Gradient Clipping with Periodic Resampled Corrections for Federated Learning with Heterogeneous Data
Michael Crawshaw, Yajie Bao, Mingrui Liu
International Conference on Learning Representations, 2023.

Robustness to Unbounded Smoothness of Generalized SignSGD
(Alphabetical order) **Michael Crawshaw**, Mingrui Liu, Francesco Orabona, Wei Zhang, Zhenxun Zhuang
Neural Information Processing Systems, 2022.

Fast Composite Optimization and Statistical Recovery in Federated Learning
Yajie Bao, **Michael Crawshaw**, Mingrui Liu
International Conference on Machine Learning, 2022.

Multi-Task Learning with Deep Neural Networks: A Survey
Michael Crawshaw
arXiv, 2020.

EMPLOYMENT

Olive   *March 2018 - August 2019*
Machine Learning Engineering Intern
- Developed computer vision functionality for desktop automation software with applications to healthcare operations.
- Trained deep neural networks for object detection with various techniques, including Faster R-CNN and DARTS.

AWARDS

Institute for Digital Innovation Predoctoral Fellowship, George Mason University	*2022*
NSF XSEDE startup allocation, National Science Foundation	*2022*
Summer Ph.D. Research Initiation Award, George Mason University	*2020*
Outstanding Graduate Teaching Assistant, George Mason University	*2020*
Gordon Memorial Fund Scholarship, The Ohio State University	*2017 - 2019*
Honorable Mention, Raser-Bareis-Gordon Math Competition, The Ohio State University	*2017*
7th Place, FIRST Tech Challenge World Competition, FIRST	*2015*

TEACHING

Graduate Teaching Assistant, George Mason University	*2019-2022*
CS 657: Mining Massive Datasets	*Fall 2020, Fall 2021*
CS 471: Operating Systems	*Fall 2020, Fall 2021, Spring 2022*
CS 583: Analysis of Algorithms	*Spring 2021*
CS 571: Operating Systems	*Spring 2021*
CS 330: Formal Methods and Models	*Fall 2019, Spring 2020*
Undergraduate Teaching Assistant, The Ohio State University	*2017 - 2018*
CSE 3321: Automata and Formal Lanuages	*Summer 2017, Fall 2017, Spring 2018*
Undergraduate Honors Math Mentor, The Ohio State University	*2016 - 2017*
Math 4181H: Honors Analysis I	*Fall 2016*
Math 4182H: Honors Analysis II	*Spring 2017*

RELEVANT COURSEWORK AND SKILLS

GMU Coursework: Optimization for machine learning, deep learning, computer vision, theory of computation, algorithms.

OSU Math Coursework: Real analysis, linear algebra, differential equations, probability, statistics, combinatorics, complex analysis, number theory, abstract algebra.

OSU CS Coursework: Software design, digital logic, databases, operating systems, networking, automata and formal languages, theory of computation, machine learning, neural networks, natural language processing.

Programming: Python (PyTorch, TensorFlow), Bash, Java, C, Git, Latex